

SYNTAX

SERVING TIMEX-SINCLAIR
PERSONAL COMPUTERS

A PUBLICATION OF **THE HARVARD GROUP**

VOL.5 NO.4

ISSN 0273-2696

APR, 1984

IN THIS ISSUE

8K Programs	
Direct Character	
Output.....	10
TS2068 Programs	
Graphic Pointer.....	3
Videograph.....	9
Book Reviews	
Three How-tos.....	4
Classified Ads.....	10
Dear Editor.....	5
New Products and	
Services.....	2
News.....	1
Software Reviews	
CHECK-B.....	8
DeathChase.....	8
Supporting Companies....	6
TS2068 Input/Output.....	3
Users' Groups.....	2
Vendor Report.....	2

Index to Advertisers

A&J Micro Drive.....	11
Byte-Back Co.....	10

CHANGES AHEAD FOR SYNCWARE NEWS

Fred Nachbaur's publication will continue on to volume 2, but shift locations, upgrade its format, take on additional personnel, publish quarterly instead of bi-monthly, and keep its editorial policies. Inquire of Syncware.

\$100 FOR YOUR ZX/TS; UP TO \$330 FOR MEMOTECH

Memotech will buy back your Memotech Timex-Sinclair add-ons at 50% of current suggested retail value and even take your ZX/TS for \$100--all credited toward your purchase of your MTX or FDX system. This offer is made only by Memotech Direct Sales Division. The trade-in values are:

16K	\$20	Keyboard	\$40
32K	\$40	Memotext	\$20
64K	\$60	Memocalc	\$20
RS232	\$40	HRG	\$40
Cent	\$30	Z80 Assembler	\$20

You may trade-in 1 Timex or Sinclair computer **with manual** for \$100 purchase credit. This offer expires **30 June 1984**.

We will not be covering Memotech's line of computers in SYNTAX--but this is one thing you can do with your ZX/TS. For additional information call the marketing department at 617/449-6614 and tell them SYNTAX sent you.

UK SOURCE FOR SPECTRUM MANUALS AND PARTS

Bob Dyl of the Ocean State Users Group in RI tells us that you can get manuals and repair parts for the ZX Spectrum from:

Computers of Wigmore St.
87 Wigmore St.

London W1H 9SA Tel. 01-486-0373

Bob also reports that some Sears surplus stores sell 2068 software for \$9.95.

OVER 130 VENDORS CONTINUE TO SERVE ZX/TS AND 2068 OWNERS IN THE US. THIS IS IN ADDITION TO THE MORE THAN 100 BOOKS LISTED LAST ISSUE

VENDOR REPORT

Biocal Software has moved to 167 Wilson St., Petaluma, CA 94952. They have a lot of software for the TS1000 and will begin developing for the TS2068. They have a tape, called "display" (\$10), that shows off the color graphics and sound capabilities of the TS2068 and includes over twenty different PLOT routines.

Howard W. Sams book *Times Sinclair 2068 Intermediate/Advanced Guide* is on hold until July 84.

Knighted Computers (707 Highland St., Fulton, NY 13069 315/593-8219) carries Panasonic and Faxam monitors, AERCO disc and printer interfaces, and Textwriter 2000+ (80 col. word processor for TS2068).

ZX/TS USERS' GROUPS

To check for a local group that's not listed, or to announce a new group, call 617/456-3661 or write SYNTAX, RD 2 Box 457, Bolton Rd., Harvard, MA 01451. Send SASE for name of group in your area.

Jacksonville, FL: New group forming, contact Andrew Y. Lin, 2815 Cortez Rd., Jacksonville, FL 32216, 904/642-0430.

NEW PRODUCTS AND SERVICES

Z-Extender Version 1.4 consists of 13 graphics and programming utilities for the ZX/TS, allowing fill screen, border, 24 reverse screen, store/recall screen, 24 line screen, 24 line COPY, free bytes, renumber BASIC lines, and autoSTOP (to overcome autoRUN programs). \$5.95 from Len Harmon, 4909 Clearlake Dr., Metairie, LA 70002.

BBS Directory (POB 4150, Beach Station, Vero Beach, FL 32964 305/466-5515) offers a quarterly listing of over 700 computerized bulletin board systems, including comments on program downloading, purpose of each bulletin board, etc. \$5.95 ppd. each quarter.

Textwriter 2000+, a TS2068 word processor using the AERCO Centronics I/F and Epson compatible printers (can be modified for other printers) includes full edit and text reformatting features, word wrap, condense, print margin control, page numbering, header, flexible enhancements. \$24.95 on cassette from Bob Fingerle, 39639 Embarcadero, Fremont, CA 94538.

GRAPHIC POINTER--TS2068

Use this machine code routine to quickly specify a PLOT position on the normal 2068 screen. The machine code is entirely relocatable and may be loaded into any safe area of memory.

In the sample program, the routine begins at 65000. When line 15 executes, the machine code takes over and you position a flashing pixel with the joystick. When you press the joystick fire button, the machine code routine returns to BASIC. The value returned (and stored in P) equals Y*256+X, where X and Y represent PLOT coordinates. Lines 25 and 30 convert P back into X and Y. The machine code also sets the system variable COORDS, the last PLOT position.

Line 10 turns on OVER writing; in this mode, PLOTS will set a point if it is reset, or reset it if it is set (also called XOR writing). The machine code routine always PLOTS each point twice, so it will leave the display intact and still flash visibly. If you call the machine code with OVER set to 0, it will leave a line behind as you move the joystick.

This routine includes two 65535 iteration delay loops, so the dot won't move around the screen too fast. You can see the loop constants as double 255's in the DATA statement.

If you set BRIGHT, FLASH, INVERSE, PAPER color, or INK color prior to calling the machine code, each character position you pass through will have its attribute byte set accordingly.

This program runs only on TS2068s, because it uses joystick hardware and ROM calls for plotting points. We welcome modifications for Spectrums or mice.

```
1 CLEAR 65000
2 FOR a=65000 TO 65033
3 READ d
4 POKE a,d
5 NEXT a
10 OVER 1
15 LEVER=USR 65000
20 LET X=INT (P/256)
30 PRINT "P: ",X,"X,Y"
40 GO TO 10
100 DATA 10,10,1,255,0,15,254,
062,001,115,245,037,203,079,030,
007,120,154,060,030,005,005,130,
203,071,132,037,100,254,175,040,
001,004,122,033,037,032,007,121,
254,000,140,001,013,122,203,095,
122,245,197,205,062,038,001,255,
255,016,254,193,137,203,062,038,
193,245,193,137,203,062,172,
SYNTRACTIC SUM: 34316, TS2068
```

TS2068 DEVICE INDEPENDENT INPUT/OUTPUT

Your TS2068's ROM operating system contains routines to assign input and output to different physical devices without changing the program taking the input and generating the output. This is called device-independent input/output.

When you turn on your 2068, it sets the output according to the following:

Command	Outputs to	Stream	Device
LPRINT	Printer	3	"P"
LLIST	Printer	3	"P"
COPY	Printer	3	"P"
PRINT	Screen Top	2	"S"
LIST	Screen Top	2	"S"
INPUT	Screen Bottom	1	"K"

You can assign any physical device ("K", "S", or "P") to any stream number (0-255). So, if you want PRINT to output to the printer instead of the screen, you use:

```
OPEN #2,"P"
```

This says to take all the output going to stream 2 and give it to the printer. LIST output will go to the printer too, since it goes to stream 2.

Suppose you want to be able to choose between screen output and printer output every time you RUN the program. You could write your program to output to the screen all the time, and if you have a printer insert OPEN #2,"P"; or you could write for the printer and if you don't want to use it insert OPEN #3,"S".

If you want to be neater, you could pick a new stream number (say 4), and write your program with PRINTS where you always want to output to the screen, and LPRINTS where you always want the printer, and PRINT #4 when you want a choice. Then you either OPEN #4,"P" or OPEN #4,"S". The #4 is just another PRINT modifier, so you end it with a semicolon:

```
PRINT #4;"Hello",A
```

One last command, CLOSE #, will help you get things back to normal. CLOSE #1 resets stream 1 to the initial setting (Screen Bottom). CLOSE #2 and #3 do the same. CLOSE #4 (or any other user-defined stream) will just make PRINT # to that stream number invalid.

Warning: some operations ignore the settings of the streams. COPY will always output to the printer, LOAD will always display the file names on the Screen Top. INPUT works only with Screen Bottom.

BOOK REVIEWS: THREE HOW-TOS

Title: How To Market Your Times/ Sinclair Software
Author: R.A. Favro
Pages: 52 Softcover
From: Softmark Associates
191 Munro Ave.
Toronto, Ontario
Canada M4M 2B8
416/465-7791
Price: \$14.95

Title: 1984 Programmer's Market
Editor: Brad M. McGehee
Pages: 268 Softcover
From: Writer's Digest Books
9933 Alliance Rd.
Cincinnati, OH 45242
513/984-0717
Price: \$16.95

Title: 1983 Software Writer's Market
Editor: Christine Leu
Pages: 98 Softcover
From: Kern Publications
190 Duck Hill Rd.
Duxbury, MA 02332
Price: 617/934-0445 \$28.50

If you've considered turning your programming efforts into a little cash, three books purport to tell you how. Of the three, one seems better for self-marketers, one better for selling to software publishers, and one really doesn't hit the mark on either count.

How to Market Your Times/ Sinclair Software delivers more professional advice than its poorly reproduced typewritten appearance would indicate. It addresses itself primarily to programmers who prefer to market their own work. Starting with an overview of the size and composition of the TS market, HMYTSS covers developing your product, developing your market plan and choosing a software publisher. The last four chapters deal with running a mail-order business, direct mail marketing, advertising and other marketing opportunities.

Although HMYTSS can help you

promote your product to software publishers (it lists 11), its strength definitely lies in its do-it-yourself approach. It also gives many references to other sources.

Put out by the same people who give us Writer's and Photographer's Market, 1984 Programmer's Market contains much the same kind of information as the other Market books. It starts with a chapter on the submission process, copyrights, royalties, and other business. Then it discusses writing manuals and documentation, designing easy-to-use software and writing the successful game. The remainder of the book (248 pages) lists software, book and periodical publishers in the microcomputer field, including 28 software publishers specifically mentioning TS computers. Unlike HMYTSS, this book gives information for all machines. Listings include name and address, contact, what kind of programs they need and payment arrangements.

Based on much the same idea, 1983 Software Writer's Market gives you lists of micro manufacturers plus software, book and periodical publishers. It also lists computer shows, distributors and directories. This book contains no helpful hint information (in fairness note that Kern Publications offers a book entitled Freelance Software Marketing, not reviewed here) and deals with a wide range of micros. I presume Kern will update it yearly. I found two software publishers mentioning TS software specifically and six book publishers. Many listed no specific machine.

If you plan to market your own software, How to Market Your Times/ Sinclair Software will benefit you most of the three books. If you prefer to deal with a software publisher, check out the second two. I found Programmer's Market more substantial and recommend it of the two listings-type books.

Ann L. Zevnik, Allston, MA

DEAR EDITOR:

Some person on your staff is well acquainted with the technical aspects of computers, but is totally incapable of teaching others what he knows; his writing is obscure; he fails to give examples which would enable the tyro to make sense out of what he is saying. These remarks apply aptly to recent articles on addressing and keyboard scanning, to mention just two. A suggestion: show the article to a tyro before publication; his questions will serve as a guide to fuller and simpler explanations.

A Reader, Clifton Park, NY

Syntax opted, at its founding, to serve a continuing audience. Novices rapidly progress to more knowing states. Much of what goes in Syntax builds on previously published material (our collected back issues are available as The Works II--see our order blank on page 11). Tyros should also use books and users' groups to learn fundamentals. Syntax does take care to present programs in recipe form--you need not understand, you may simply use. But when you reach understanding, Syntax wants you to see value still.

The Times pullout was a disappointment, but one I felt I could live with. What I see as the real threat to ZX/TS computing is the alarming number of panic stricken third party software and hardware producers leaving the Times scene.

This wholesale desertion perplexes me because, contrary to what those leaving the industry may say about the ZX/TS market being dead, I have been inundated with calls and letters from people who say, "Please don't give up on ZX/TS computers."

A healthy market is there for people who offer quality, honesty and fair prices. I would encourage those in the business to stick with their Times line. Opportunity still knocks for anyone who wants to get started and is willing to see their project through.

If the ZX/TS computer does eventually fade away, it will not be because Times quit. The real reason, rather, will be that there isn't any software or hardware available for it. Users will simply lose interest. To keep the machine alive, we must all pull together and communicate. SYNTAX offers a rare opportunity to coordinate this.

Thomas B. Woods, Jefferson, NH

I tried "Recipes for Advanced Video" [SYNTAX Feb.84], and I got 64 columns, but could only use every other one. Printer output did not change. Why?

John Kuhn, Jacksonville, FL

Although the TS2068 hardware can display 64 columns per line, none of the software included in the BASIC ROM takes advantage of this feature. When in 64 column mode, every other character in a line comes from FILE2 (BASIC always uses FILE1). The TS2040 and ZX Printers cannot COPY the 64 column display because they cannot print 512 dots per line.

Supelco sells thermal paper for the HP 3390 Integrator, the same paper used with TS2040 printers except in 400 foot rolls. I have used both the black and blue, and both work very well. I like the blue because the paper is whiter.

[Supelco, Inc., 3110 Forest Oaks Dr. Suite 250, Houston, TX 77017 713/947-8640, Cat. number 2-2337 (blue); 2-2355 (black)]

I also found gold PC board edge connector fingers that can be soldered to the fingers of the ZX/TS [Elfab Corp., POB 810555, Dallas, TX 75381 214/233-3033].

David Huesch, Chesapeake, VA

Why do you print ZX/TS programs and say "Translate with FIRSTLOADER, then make these changes"? Why don't I just type them into my TS2068 with the changes?

Why did you put Syntactic Sum for the 2068 in the UDG memory? Why did you then CLEAR 65499, since the UDG area is already protected from NEW?

Why was the data in "Recipes for 2068 Advanced Video" [SYNTAX Feb.84] in hex, then translated?

James F. Brezina, Elmhurst IL

You can certainly enter TS1000 programs directly into your TS2068, with the published changes. Or you can translate.

We considered the UDG area one which was safely out of the way so that Syntactic Sums could be calculated for programs that fill all of memory. The CLEAR was a harmless oversight.

The source document for "Recipes" contained the code in hexadecimal. We opted to publish it in hex to avoid translation errors. The BASIC code which converts hex to decimal is useful in other ways and very compact, relying on the VAL function's ability to evaluate a variable.

ZX/T'S RELATED COMPANIES STILL ACTIVELY SUPPORTING TIMEX/SINCLAIR COMPUTERS

Organization	Address	State	Zip	Telephone
*A&J MicroDrive	1050 E Duane Ave Suite I, Sunnyvale	CA	94086	408/732-3292
A.F.R. Software	1605 Penn. Ave. # 204, Miami Beach	FL	33139	305/531-6464
*AERCO	POB 18093, Austin	TX	78760	512/331-0719
Aardvark 80	2352 S. Commerce, Walled Lake	MI	48088	313/689-3110
*Apropos Technology	10714 Abenida Acazo, Camarillo	CA	93010	805/482-3604
*Audio Vision Systems	2579 N. Normandie, Los Angeles	CA	90027	213/660-5217
AudioGraph	3584 Leroy St., Ann Arbor	MI	48103	313/769-6859
*BASIGally Programming	2528 West Olive Dept S, Fullerton	CA	92633	714/738-0666
*Banta Software	8088 Highwood Way, Orangevale	CA	95662	916/722-4895
Barlog Software	401 N. Gever. Rd., Kirkwood	MO	63122	
Baone, Andre	304 Scott, Chateaugay	QU	J6J 4H5	514/691-6933
Bloca, Andre	167C Wilson St., Petaluma	CA	94952	
Bird Software	2091 Carrick St., Victoria	BC	V8R 2M5	
Brainchild Computer Works	POB 506, Pewaukee	WI	53072	414/691-9903
*Brown, E. Arthur Co.	3404 Pawnee Drive, Alexandria	NC	56308	612/762-8847
*Byte-Bak Co.	Rt. 3 Box 147 Brodie Rd., Leesville	SC	29070	803/532-5812
Cinagro Software	155 7th St., Rochester	NY	14609	716/654-7614
Compuca Corporation	1101 Bristol Rd., Mountianside	NJ	07092	201/654-7220
*Computer Continuum	301 16th Ave, San Francisco	CA	94118	415/752-6294
Computerware Publishing	92 Ruskin St., Ottawa	ON	K1Y 4B2	
*Crystal Coast Software	POB 233, Morehead City	NC	28557	
*Curry Computer	5344 W. Banff Lane, Glendale	AZ	85306	602/978-2902
*D. Lipinski Software	2737 Susquehanna Rd., Roslyn	PA	19001	215/572-6812
DHS	POB 681, Orland	CA	95963	916/865-5188
Delphic Enterprises	POB 72205, Corpus Christi	TX	78472	512/854-5873
Discount Software	POB 2035, New York	NY	10185	212/486-0980
Doc's Software	4339 Keysville Ave., Spring Hill	FL	33526	
Down East Computers	POB 3096, Greenville	NC	27834	919/752-7817
*E-Z Key	Suite 75, 711 S. Artery, Quincy	MA	02169	617/773-1187
ENER-Z Company	POB 635, Fort Washington	PA	19034	215/757-0284
*EZRA Group II	POB 5222, San Diego	CA	92105	
*Executive Workshop	7420 SF Woodstock, Portland	OR	97206	503/771-8564
*Fingerle, Robert	39639 Embarcadero, Fremont	CA	94538	
*G. Russell Electronics	RD 1 Box 539-S, Centre Hall	PA	16828	814/364-1325
*Games to Learn By	2 South St Box 575, Williamsburg	MA	01096	413/268-7505
Ganhart Earthings	115 N. Racky River Dr., Berea	OH	44017	
General Systems Consulting	2312 Rolling Rock Dr., Conley	GA	30027	404/243-7369
*Gesang Associates	POB 452, Randallstown	MD	21133	301/922-0767
Geschwind, Herman	1714 Clarendon Dr., Greensboro	NC	27410	
Gibson Data Systems	9 Orchard Dr., Durham	NH	03824	
Gladstone Electronics	90 Furchmann Blvd., Buffalo	NY	14203	716/874-5510
*Group Technology Ltd.	POB 87, Check	VA	24072	703/651-3153
Harmon, Len	4909 Clearlake Dr., Metairie	LA	70002	
Hawg Wild Software	POB 7668, Little Rock	AR	72217	501/227-7817
*Heath Computer Serv.	950 East 52 South, Greentown	IN	46936	317/628-3130
*Heller Paper Co.	2123 E. 38th St., Brooklyn	NY	11234	
Hobby Robot Co.	POB 887, Hazlehurst	GA	31539	
Hunter	1630 Forest Hills Dr., Okemos	MI	48864	912/375-7821
Huron Valley Research	POB 732, Highland	MI	48031	
Independence Research	POB 1497, Orem	UT	84057	
Integrated Data Systems	11 Brighton Ave, Toronto	ON	M4M 1P3	
JK Audio	POB 3295, Escondido	CA	92025	619/741-5132
*JM Software	1852 Appleford St., Gloucester	ON	K1J 6T4	613/746-7869
*JRC Software	POB 448, Scottsburg	IN	47170	812/752-6071
*K-Soft	845 Wehner, Naperville	IL	60540	312/961-1250
K2 Electronic Design	3990 Varsity Drive, Ann Arbor	MI	48104	313/973-6266
Kimbrough, B. F.	723 Roselle Ave. Floor 2, Akron	OH	44307	
*Knighted Computers	707 Highland St., Fulton	NY	13069	315/593-8219

*Indicates a company that provides support for the TS2068

SOFTWARE REVIEW

Program: CHECK-B
 Machines: TS2068
 Form: Cassette
 Listing: No
 Listable: Yes
 Language: BASIC
 Display: Good
 Author: Dale Lipinski
 From: D. Lipinski Software
 2737 Susquehanna Road
 Roslyn, PA 19001
 215/572-6812
 Price: \$20

CHECK-B, a menu-driven package intended to help you keep your checkbook in order, consists of several functions. You can enter data into your electronic checkbook, including check number, payee, amount, and an optional memo, look for a particular transaction, display or print all of the entries, locate and change any entry, balance (reconcile) your checkbook, delete reconciled entries, and SAVE program and data.

CHECK-B contains many good features, among them ease of use, complete, understandable documentation, input error checking and crash recovery. You can enter transactions in any order. After reconciliation, CHECK-B reports correct balances for your checkbook and your bank statement.

CHECK-B has some drawbacks, too. It keeps too much and is too verbose (I prefer output like my checkbook register to CHECK-B's ten lines per transaction). It displays the current balance after each transaction, instead of a more useful running balance, and finds partial names during a search only if they match the first letters in the field. CHECK-B uses its own "quit" key to mean "go ahead and delete entries" in one section. Not very clever human engineering.

Overall, I cannot recommend this package unless you intend to modify it to make it more useful.

SOFTWARE REVIEW

Program: DeathChase
 Machines: TS2068
 Form: Cassette
 RAM Req: 48K
 Listing: No
 Listable: No
 Language: MC
 Display: Excellent
 Author: Mervyn J. Estcourt
 From: Games to Learn By
 POB 575
 Williamsburg, MA 01096
 413/268-7505
 Price: \$19.95

Even if you don't believe it's 2501 and you belong to a group of mercenary motorcyclists, DeathChase ought to keep you occupied forever trying to reach the elusive Sector 8. According to the instructions, there lies a great reward beyond the miles of day and night motorcycle patrols through the woods. I have yet to reach it.

In Cyclepath, you ride through the woods in 3D, slowly approach enemy motorcyclists and destroy them with photon bolts. When you've managed to clear out a sector, night falls and the scenario repeats. It's quite difficult just to avoid hitting the trees, never mind shooting your enemies (or special bonus helicopters and tanks). Realistic sounds accompany all your travels, although a bit loud for my taste.

This program originally ran on the ZX Spectrum and has been modified for the TS2068. It appears to be bug-free, LOADED easily, and displays some of the nicest graphics I've ever seen on any small microcomputer. It uses the keyboard or the left hand joystick for steering and firing. If all programs were this well written, computing would be a lot more fun and a lot less work. If arcade-style graphics makes your day, you can count on this game for hours of challenging play.

VIDEOGRAPH--TS2068

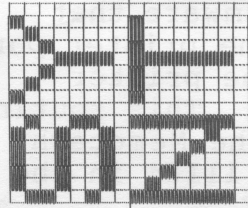
You can create up to 4 user defined graphics characters at a time, using a 16 X 16 grid provided by VIDEOGRAPH. All 21 UDGS can be defined, but assigning a character to UDG "u" may distort the display, since the program uses this character to print the grid.

Move the cursor with the 4 arrow keys (unshifted). Blacken a pixel with 0. When you want to define one or more UDGS from the grid, hit 9. The program will prompt you to assign each quarter of the grid to a letter: if you don't want to assign a certain quarter of the grid, just hit ENTER. It takes about 10 seconds to store a UDG.

In the program listing, line 8030 contains 8 graphic U's, line 8130 contains only one graphic U (the last U on the line), and line 8530 contains two graphic U's.

J. Showalter, Akron, OH

UDG-1 UDG-3



UDG-2 UDG-4

```
8000 REM VIDEOGRAPH
8002 REM BY J. SHOWALTER
8004 REM FOR TS2068
8006 REM 48K RAM
8010 LET I=4: LET C=1: LET X=""
8020 FOR N=0 TO 7: READ A: POKE
8030 LET W$="UUUUUUUU": DIM Z$(3)
8040 FOR N=1 TO 32: LET Z$(N)=W$
: NEXT N
```

```
8100 CLS
8110 FOR N=1 TO 17: PLOT 85+NF
8120 DRAW 128+16*NF: GOTO 8160
8130 NEXT N
8140 PRINT "AT 0,0"
8150 PRINT "AT 21,1:UDG-1:TAB 10
8160 GOTO 4
8170 FOR N=7 TO 16: PRINT AT 0,2
8180 CHR$(N+58):"CHR$(N+137):T
8190 CHR$(N+58):"CHR$(N+14
8200 NEXT N: PRINT AT 17,28:U"
8210 REM
8220 LET R=1-3+16*(C>8): LET B=C
8230 PRINT AT I,C: OVER 17>
8240 LEAVE INKEY# IF CODE U#4
8250 UDG I,C THEN GO TO 8150
8260 GOTO U#47:#20:8500
8270 LET Z$(C,B)=U: PRINT AT I
8280 GO TO 8140
8290 REM
8300 LET Z$(C,B)=: PRINT AT I
8310 GO TO 8140
8320 REM
8330 GOTO 8150
8340 REM
8350 PRINT AT I,C:Z$(C,B): LET C
8360 GOTO 8140
8370 REM
8380 INPUT FLASH I:UDG="":CHR#(
8390 FLASH 0:=(CHARACTER A
8400 U):X#0: IF X#(N)=9: THEN GO
8410 TO 8320 X#(N)=" THEN LET V=NOT
8420 NEXT N: GOTO 8150
8430 NEXT I: GOTO 8150
8440 REM
8450 PRINT AT I,C:Z$(C,B): LET C
8460 GOTO 8140
8470 REM
8480 PRINT AT I,C:Z$(C,B): LET C
8490 GOTO 8140
8500 REM
8510 INPUT FOR N=1 TO 4
8520 INPUT FLASH I:UDG="":CHR#(
8530 FLASH 0:=(CHARACTER A
8540 U):X#0: IF X#(N)=9: THEN GO
8550 TO 8320 X#(N)=" THEN LET V=NOT
8560 NEXT N: GOTO 8150
8570 NEXT I: GOTO 8150
8580 REM
8590 PRINT AT I,C:Z$(C,B): LET C
8600 GOTO 8140
8610 REM
8620 PRINT AT I,C:Z$(C,B): LET C
8630 GOTO 8140
8640 REM
8650 PRINT AT I,C:Z$(C,B): LET C
8660 GOTO 8140
8670 REM
8680 PRINT AT I,C:Z$(C,B): LET C
8690 GOTO 8140
8700 REM
8710 INPUT FOR N=1 TO 4
8720 INPUT FLASH I:UDG="":CHR#(
8730 FLASH 0:=(CHARACTER A
8740 U):X#0: IF X#(N)=9: THEN GO
8750 TO 8320 X#(N)=" THEN LET V=NOT
8760 NEXT N: GOTO 8150
8770 NEXT I: GOTO 8150
8780 REM
8790 PRINT AT I,C:Z$(C,B): LET C
8800 GOTO 8140
8810 REM
8820 PRINT AT I,C:Z$(C,B): LET C
8830 GOTO 8140
8840 REM
8850 PRINT AT I,C:Z$(C,B): LET C
8860 GOTO 8140
8870 REM
8880 PRINT AT I,C:Z$(C,B): LET C
8890 GOTO 8140
8900 REM
8910 PRINT AT I,C:Z$(C,B): LET C
8920 GOTO 8140
8930 REM
8940 PRINT AT I,C:Z$(C,B): LET C
8950 GOTO 8140
8960 REM
8970 PRINT AT I,C:Z$(C,B): LET C
8980 GOTO 8140
8990 REM
9000 PRINT AT I,C:Z$(C,B): LET C
9010 GOTO 8140
9020 REM
9030 PRINT AT I,C:Z$(C,B): LET C
9040 GOTO 8140
9050 REM
9060 PRINT AT I,C:Z$(C,B): LET C
9070 GOTO 8140
9080 REM
9090 PRINT AT I,C:Z$(C,B): LET C
9100 GOTO 8140
9110 REM
9120 PRINT AT I,C:Z$(C,B): LET C
9130 GOTO 8140
9140 REM
9150 PRINT AT I,C:Z$(C,B): LET C
9160 GOTO 8140
9170 REM
9180 PRINT AT I,C:Z$(C,B): LET C
9190 GOTO 8140
9200 REM
9210 PRINT AT I,C:Z$(C,B): LET C
9220 GOTO 8140
9230 REM
9240 PRINT AT I,C:Z$(C,B): LET C
9250 GOTO 8140
9260 REM
9270 PRINT AT I,C:Z$(C,B): LET C
9280 GOTO 8140
9290 REM
9300 PRINT AT I,C:Z$(C,B): LET C
9310 GOTO 8140
9320 REM
9330 PRINT AT I,C:Z$(C,B): LET C
9340 GOTO 8140
9350 REM
9360 PRINT AT I,C:Z$(C,B): LET C
9370 GOTO 8140
9380 REM
9390 PRINT AT I,C:Z$(C,B): LET C
9400 GOTO 8140
9410 REM
9420 PRINT AT I,C:Z$(C,B): LET C
9430 GOTO 8140
9440 REM
9450 PRINT AT I,C:Z$(C,B): LET C
9460 GOTO 8140
9470 REM
9480 PRINT AT I,C:Z$(C,B): LET C
9490 GOTO 8140
9500 REM
9510 PRINT AT I,C:Z$(C,B): LET C
9520 GOTO 8140
9530 REM
9540 PRINT AT I,C:Z$(C,B): LET C
9550 GOTO 8140
9560 REM
9570 PRINT AT I,C:Z$(C,B): LET C
9580 GOTO 8140
9590 REM
9600 PRINT AT I,C:Z$(C,B): LET C
9610 GOTO 8140
9620 REM
9630 PRINT AT I,C:Z$(C,B): LET C
9640 GOTO 8140
9650 REM
9660 PRINT AT I,C:Z$(C,B): LET C
9670 GOTO 8140
9680 REM
9690 PRINT AT I,C:Z$(C,B): LET C
9700 GOTO 8140
9710 REM
9720 PRINT AT I,C:Z$(C,B): LET C
9730 GOTO 8140
9740 REM
9750 PRINT AT I,C:Z$(C,B): LET C
9760 GOTO 8140
9770 REM
9780 PRINT AT I,C:Z$(C,B): LET C
9790 GOTO 8140
9800 REM
9810 PRINT AT I,C:Z$(C,B): LET C
9820 GOTO 8140
9830 REM
9840 PRINT AT I,C:Z$(C,B): LET C
9850 GOTO 8140
9860 REM
9870 PRINT AT I,C:Z$(C,B): LET C
9880 GOTO 8140
9890 REM
9900 PRINT AT I,C:Z$(C,B): LET C
9910 GOTO 8140
9920 REM
9930 PRINT AT I,C:Z$(C,B): LET C
9940 GOTO 8140
9950 REM
9960 PRINT AT I,C:Z$(C,B): LET C
9970 GOTO 8140
9980 REM
9990 PRINT AT I,C:Z$(C,B): LET C
10000 GOTO 8140
```

DIRECT CHARACTER CODE OUTPUT--8K/1K

Since the ZX/TS machines do not use ASCII internally, printer interfaces must translate ZX/TS character codes into ASCII before sending them to the printer. The ASCII code runs from 0 to 127, and uses the eighth bit of each byte for parity. Some printers, however, use the ASCII code from 0-127 and an extension to ASCII from 128-255. Some interfaces filter out certain codes (less than 32 or over 128). If you need to send codes to your printer that your interface won't allow, use this.

We need only find the routine in the interface firmware that actually accesses the printer port, and send codes to the printer without translation. This routine starts at 10549 in the Memotech Centronics I/F, and 11104 in the AERCO Centronics I/F.

Type in listing one and RUN. Enter the following numbers, depending on the interface you use:

Memotech: 62 65 205 53 41 201
 AERCO: 62 65 205 96 43 201

Now if you POKE 16515 with the ASCII code you want to print and then execute RAND USR 16514, the printer will be sent the code in location 16515.

```
10 REM 123456
20 FOR A=16514 TO 16519
30 INPUT D
40 POKE A,D
50 NEXT A
SYNTACTIC SUM: 3511, 8K ROM
```

Virginia T. Lake, Wilmington, DE

CLASSIFIED ADS

Reach thousands of ZX/TS users--for just \$9/line! Send your typed copy (35 characters per line) with check or MO to reach us by the 15th to be published in the next issue exactly as typed. No fractions or cent symbols. Include your phone No.

SYNTAX Classified

RD2 Box 457, Harvard, MA 01451

In Stock! **NEW MD-2B** KIT
SMART MODEM \$119.95
 ASSEMBLED & TESTED \$149.95
 Now With Both **ORIG./ANS.**

- Send Text from Memory
- Send and receive Programs by Phone
- Copy Information into memory
- Print it, Review it, Save it on Tape
- Use Timex 2040 Printer or RS-232
- RS-232 Printer Port provided
- No extra memory Required.

See Review in Feb. '84 SYNTAX • 2 FREE Hours on COMPUSERVE
 COMPUSERVE PACKAGE WITH 5 FREE HOURS ONLY \$39.95

NEW MD-68 FOR THE 2068
 SAME FEATURES & SAME PRICE AS THE MD-2B

64-K MEMORY \$109.95 KIT • Battery Backup
 the "ULTIMATE MEMORY" \$119.95 ASSEMBLED
 SEE REVIEW IN JANUARY '84 SYNTAX

KEYBOARD without case **\$39.95**

GORILLA/BANANA PRINTER ..\$199.95

ZX PRO/FILE Cassette & Book \$16.95 including shipping
 Clearly the Best File Management Program Available.

NEW PRO/FILE 2068 Cassette & Book \$29.95 including shipping
 A new version of the Popular ZX PRO/FILE Program with many new features for the 2068. Includes a 100 Page Manual.

RS-232 PRINTER INTERFACE Only \$59.95 KIT \$69.95 ASSEMBLED

CONTROL MODULE 8 relays, 8 inputs, \$59.95 KIT \$69.95 ASSEMBLED

BYTE BACK CO.
 Rt. 3, Box 147, Brodie Road
 Leesville, S.C. 29070
 ORDER PHONE 803-532-5812
 Add \$4.95 shipping and handling
 90 Day Warranty On All Modules. 10--Day Return Privilege



PRO/FILE UPDATES the newsletter for ZX Pro/File owners. Get mods, uses, enhancements, and explanations as they occur for \$9.95 per year. Get the PRO/FILE program for \$16.95 on AERCO disk w/instructions \$39.95 New PRO/FILE 2068 on tape \$29.95 VISA/MC welcome-call (603) 586-7734 Tom Woods Box 64 Jefferson, NH 03583

T/S-TIS PRODUCTS CATALOG AND GUIDE This program lists over 90 products for your TS 2068. A great Place to advertise. Send \$3.00 to TSTIS-CAT P.O. Box 15214, Red Bank TN 37415

Tax Planner as pub. in SQ Summer 83 with improvements, '84 Tax Rates, from author on cassette. \$9.50 MO. or check. Geschwind, 1714 Clarendon Greensboro NC 27410

SCREEN-CALC SPREADSHEET -1008 cells each holds label & value -180 user functions + loops/sum/average/more 26 page instructions - 2068 \$19.95 small version/others for 1000/1500 * BANTA SOFTWARE 8088 Highwood Way* *Orangevale CA 95662 (916)722-4895*

SYNTAX is published monthly by a wholly-owned subsidiary of The Harvard Group.

Syntax ZX80, Inc.
RD 2, Box 457, Harvard, MA 01451.
Telephone 617/456-3661.
12 issues, \$29. Single issue, \$4.

Publisher: Kirtland H. Olson

Editor: Eric K. Olson

Consulting Editor: Ann L. Zevnik

Technical Consultant: Kirtland H. Olson

© Syntax ZX80, Inc., 1984. All rights reserved.
 Photocopying prohibited. ISSN 0273-2696

OUR POLICY ON CONTRIBUTED MATERIAL

SYNTAX invites you to express opinions related to any Sinclair or Timex computer or peripheral, or the newsletter. We will print, as space allows, letters discussing items of general interest. Of course we reserve the right to edit letters to a suitable length and to refuse publication of any material.

We welcome program listings for all levels of expertise, written in either Sinclair BASIC or Z80 machine code. Programs can be for any fun or useful purpose. We will test run each one before publishing it, but we will not debug programs; please send only workable listings. Programs submitted on cassette can be tested more quickly and with less chance of error.

In return for your listing, we will pay you a token fee of \$2.00 per program we use. This payment gives us the nonexclusive right to use that program in any form, world-wide. This means you can still use it, sell it, or give it away, and so can we.

We will consider submissions of news and hardware or software reviews. Please keep articles short (350-400 words). Again, we reserve the right to edit accepted articles to suitable length. We will pay 7 cents per 6 characters, including spaces and punctuation, for accepted articles.

When you send in articles for possible publication in SYNTAX, please include the following information:

- How to operate the program, including what to input if it does not contain prompts.
- Whether you can run the program over again and how.
- How to exit the program.
- The Syntactic Sum (program published in June 81; send SASE for a free copy).
- What RAM size program requires.
- What ROM program uses (8K, 2068, Spectrum).
- For MC programs, what addresses must change to relocate the code and what ROM calls are used.

We pay for this explanatory text at the same rate as we pay for articles in addition to payment for the program itself.

If you want us to return your original program listing or article, please include a self-addressed, stamped envelope. Otherwise, we cannot return submitted material.

Fill out the coupon below and mail to: SYNTAX, RD 2, Box 457, Harvard, MA 01451

- My check is enclosed. Please charge my VISA
 Make checks Payable to: Diner's Club Mastercard
 SYNTAX ZX80, Inc. American Express Access
 Carte Blanche Barclaycard

Account number _____

Exp. date _____ Bank number (MC only) _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

Phone: Day (____) _____ Evening (____) _____

My subscription number is: _____

This is a new subscription

FAST, RELIABLE, EASY-TO-USE!



REPLACE YOUR CASSETTE NOW!

- Load 16K in 15 seconds
- 30 times faster than cassette
- Automatic verify with save
- Multiple drive systems
- Complete digital operation
- Saves and loads programs
- Automatic data chaining
- No rewinding or volume controls

STRINGY FLOPPY

- Starter Kit \$149.50
 Add \$6.50 Shipping
 Includes Drive 1, Interface,
 Manual, Operating Software,
 Power Supply, Cable,
 3 Microwafers.
 ESF Drive 2 \$99.50
 ESF Owners Manual \$4.95

MICRO WAFER

- 5 ft \$3.50
 10 ft \$3.50
 20 ft \$4.00
 35 ft \$4.00
 50 ft \$4.50

SOFTWARE

- "ZX PRO/FILE" by Tom Woods ... \$19.95
 Machine Language Monitor \$19.95
 HI-RES Graphics \$19.95

A&J Micro Drive
 1050 E. Duane Ave., Suite I
 Sunnyvale, CA 94086
 (408) 732-9292



- Check or Money Order Enclosed C.O.D. add \$1.65
 U.P.S. Shipping cost, add \$3.00, unless otherwise specified
 VISA MASTERCARD CA residents add 6.5% sales tax

Card # _____ Exp. date _____

Name _____

Address _____

City _____ State _____ Zip _____

3 Rolls ZX Printer Paper \$13.50
 MeDAC 1235 Madera St Dub. IA.52001

HIGH RESOLUTION GRAPHICS PROGRAM (192*128) \$5
 Wordprocessor with low-ercase on printer \$6
 Highres space invaders \$9
 C.Bird 2091 Carrick St. Victoria, B.C. Canada V8R2M5

s4/84

YES! Please send me:

- The Combination II (13 issues of SYNTAX and SQ Winter 82-Summer 83) \$39
- The Catch-up II (SYNTAX Jan. 82-Jan. 84, SQ Winter 82-Summer 83, plus binder) \$77
- THE WORKS II** (SYNTAX Nov. 80-Dec. 83, SQ Winter 82-Summer 83, plus 2 binders) \$97
- 12 issues of SYNTAX \$29
- 3 issues of Syntax Quarterly (Winter 82-Summer 83) .. \$25
- 1 issue Syntax Quarterly Winter 82, Spring 83
 Summer 83 \$9
- 1 Binder \$9 1 issue of Syntax \$4

Telephone orders call
617-456-3661

These offers expire 6/15/84 — SUBSCRIBE NOW.

ZX PRO/FILE CARTRIDGE \$39.95

The #1 Timex database manager plus: QUICKLOAD-saves/loads a 16K file in 30 sec! Stores 1 MEGABYTE ON 1 tape Next best thing to a disk...with 59 pg. manual. Send 39.95 + 2.75 sh to ROMPAK 8206 Blackburn Ave. L.A. CA 90048 Send SASE for catalog

****NAMES**** A Genealogical File Program for the ZX-81 and T/S 1000. Holds complete data on 100 persons. Searches, lists and prints data. Requires 64K memory. Also available for Timex 2000 series (holds data on 70 persons). \$30 pp. Send Check or money order to V.T. Lake, P.O. Box 351, Hockessin, DE 19707

4 Fast fun TS1000-1500 machine code games on cassette (16K). Only \$5. DHS PO Box 681, Orland, CA 95963

2040 paper \$5.30/2rl, ZX paper \$11/3rl. 8" ribbon cable gold ends \$17. P&H \$1.50/ord catalog \$2 VISA/MC OK INTEGRATED DATA SYSTEMS 11 BRIGHTON AVE TORONTO ONT M4M 1P3

TEXTWRITER 2000- WORD PROCESSING FOR TS2068. FULL EDIT FEATURES. FOR 2040 OR 80 COL AERCO I/F.FREE INFO. 2040- \$18.95, 80 COL- \$24.95 CASS. ROBERT FINGERLE, 39639 EMBARCADERO FREMONT, CA 94538

THE BOOKKEEPER

for expanded TS1000's and TS2068's. Up to 650 entries with carry forward. Up to 99 user definable accounts. Printout for Journal, Ledger, Chart of Accounts Income Statements and Balance Sheets. Item search and check register maintenance. Send \$25.00, MC or VISA for manual, cassette, and reference cards to GIBSON Data Systems, 9 Orchard Dr., Durham, NH 03824

CASSETTES-C20 with cases. 10/\$7.50 25/\$18, 50/\$34, 100/\$63. WMJ Data Systems, 4 Butterfly Dr, Hauppauge, NY 11788. T/S software available.

SERIOUS SOFTWARE--7 available for TS-1000 group, a Checkbook, Ledger, Expense sheet, 2 Inventories, Quiz maker, File keeper. For the TS-2068 a Checkbook, a General Ledger. More coming Info LIPINSKI SOFTWARE, 2737 Susquehanna Road, Roslyn, PA 19001

FOR A CHINESE RING PUZZLE THAT DEMONSTRATES BINARY COUNTING SEND \$5 TO EDWARD SIDORSKI RD3 BOX 842 SUSQUEHANNA PA 18847

CLEAR TV DISPLAY WITH UHF MODULATOR on TS1000/1500. COMPUTER CONTINUUM 301 16th Avenue, San Francisco CA 94118. \$10 includes SH 415-742-6294

SYNTAX

THE HARVARD GROUP

Bolton Road, Harvard, Mass. 01451

First Class

U.S. Postage
PAID
Harvard, MA
Permit No. 8
01451